

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions of claims in the application.

1. (Currently Amended): A solid electrolyte comprising [[an]] sintered inorganic substance powder comprising a lithium ion conductive crystalline ~~and being said sintered inorganic substance powder being in an amount within a range from 50 mass % to 98 mass %.~~

wherein said solid electrolyte is substantially free of an organic substance and an electrolytic solution, and

said solid electrolyte has a thickness of 25 μm or over.

2. (Currently Amended): A solid electrolyte as defined in claim 1 wherein the inorganic substance powder comprising a lithium ion conductive crystalline is substantially free of a pore or a crystal grain boundary which obstructs ion conduction.

3. (Currently Amended): A solid electrolyte as defined in claim 1 wherein the inorganic substance powder comprising a lithium ion conductive crystalline is lithium ion conductive glass-ceramics.

4. (Original): A solid electrolyte as defined in claim 1 comprising an inorganic substance powder comprising a lithium ion conductive crystalline and an inorganic substance comprising Li.

5. (Currently Amended): A solid electrolyte as defined in claim 4 wherein the inorganic substance powder comprising a lithium ion conductive crystalline has ion conductivity of 10^{-4}Scm^{-1}

or over, has an average particle diameter of $9\ \mu\text{m}$ or below, ~~and is contained in the solid electrolyte in an amount within a range from 50 mass% to 95 mass%.~~

6. (Original): A solid electrolyte as defined in claim 3 wherein the ion conductive glass-ceramics are in the form of a thin plate.

7. (Cancelled).

8. (Original): A solid electrolyte as defined in claim 1 having ion conductivity which is 10^{-5}Scm^{-1} or over.

9. (Currently Amended): A solid electrolyte as defined in claim 1 wherein the inorganic substance powder comprising a lithium ion conductive crystalline has a predominant crystal phase of $\text{Li}_{1+x+y}\text{Al}_x\text{Ti}_{2-x}\text{Si}_y\text{P}_{3-y}\text{O}_{12}$ where $0 \leq x \leq 1$ and $0 \leq y \leq 1$.

10. (Currently Amended): A solid electrolyte as defined in claim 1 wherein the inorganic powder substance comprising a lithium ion conductive crystalline comprises, in mol %;

Li_2O	12 – 18%
$\text{Al}_2\text{O}_3 + \text{Ga}_2\text{O}_3$	5 – 10%
$\text{TiO}_2 + \text{GeO}_2$	35 – 45%
SiO_2	1 – 10% and
P_2O_5	30 – 40%.

11. (Currently Amended): A solid electrolyte as defined in claim 1 wherein the inorganic substance powder comprising a lithium ion conductive crystalline comprises, in mass %;

Li_2O	3 – 10%
$\text{Al}_2\text{O}_3 + \text{Ga}_2\text{O}_3$	5 – 20%
$\text{TiO}_2 + \text{GeO}_2$	25 – 40%
SiO_2	0.5 – 8% and
P_2O_5	40 – 55%.

12. (Withdrawn): A lithium ion secondary battery comprising a solid electrolyte as defined in claim 1.

13. (Withdrawn): A lithium ion secondary battery as defined in claim 12 comprising an inorganic substance comprising a lithium ion conductive crystalline in a positive electrode and/or a negative electrode.

14. (Withdrawn): A lithium ion secondary battery as defined in claim 13 wherein the inorganic substance comprising a lithium ion conductive crystalline contained in the positive electrode and/or the negative electrode is substantially free of a pore or a crystal grain boundary which obstructs ion conduction.

15. (Withdrawn): A lithium ion secondary battery as defined in claim 13 wherein the inorganic substance comprising a lithium ion conductive crystalline contained in the positive electrode and/or the negative electrode is a lithium ion conductive glass-ceramics.

16. (Withdrawn): A lithium ion secondary battery as defined in claim 13 wherein an average particle diameter of the inorganic substance comprising a lithium ion conductive crystalline contained in the positive electrode and/or the negative electrode is 1/5 or below of an average particle diameter of an active material of the positive electrode and/or the negative electrode comprising an inorganic substance comprising a lithium ion conductive crystalline.

17. (Withdrawn): A lithium ion secondary battery as defined in claim 13 wherein an amount of the inorganic substance comprising a lithium ion conductive crystalline contained in the positive electrode and/or the negative electrode is 2 – 35 mass % of an active material of the positive electrode and/or the negative electrode.

18. (Withdrawn): A lithium ion secondary battery as defined in claim 13 wherein the inorganic substance comprising a lithium ion conductive crystalline contained in the positive electrode and/or the negative electrode comprises, in mol %;

Li_2O	12 – 18%
$\text{Al}_2\text{O}_3 + \text{Ga}_2\text{O}_3$	5 – 10%
$\text{TiO}_2 + \text{GeO}_2$	35 – 45%
SiO_2	1 – 10% and
P_2O_5	30 – 40%.

19. (Withdrawn): A lithium ion secondary battery as defined in claim 13 wherein the inorganic substance comprising a lithium ion conductive crystalline contained in the positive electrode and/or the negative electrode comprises, in mass %;

Li_2O	3 – 10%
$\text{Al}_2\text{O}_3 + \text{Ga}_2\text{O}_3$	5 – 20%
$\text{TiO}_2 + \text{GeO}_2$	25 – 40%
SiO_2	0.5 – 8% and
P_2O_5	40 – 55%.

20. (Withdrawn): A lithium ion secondary battery as defined in claim 13 wherein the inorganic substance comprising a lithium ion conductive crystalline contained in the positive electrode and/or the negative electrode has a predominant crystal phase of $\text{Li}_{1+x+y}\text{Al}_x\text{Ti}_{2-x}\text{Si}_y\text{P}_{3-y}\text{O}_{12}$ where $0 \leq x \leq 1$ and $0 \leq y \leq 1$.

21. (Withdrawn): A lithium ion secondary battery as defined in claim 13 which comprises, in the positive electrode and/or the negative electrode, the same inorganic substance as the inorganic substance comprising a lithium ion conductive crystalline contained in the solid electrolyte.